|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TUVRLOGO_2EN_RGB** | | | | |
| **Test Minutes** | | | | |
| Regarding | | | | |
|  | | **Regulation (EU) 2015/758** (last amended by 2017/79)  **UNECE Regulation No. 144** (last amended by A00S00C00) | | |
| **eCall in-vehicle system / Accident Emergency Call System (AECS)** | | | | |
|  | | | | |
|  | Inspector (1): | |  |  |
| Inspector (2): | |  |
|  | Inspector (3): | |  |  |
| Inspector (4): | |  |
|  | | | | |
| **Pass  Fail** | | | | |
|  | | | | |
| *Manufacturer: , Type:* | | | | |
|  | | | | |
|  | Contents: | | | |
|  | 0. Basic information | | | |
|  | 1. Product information | | | |
|  | 2. Application status | | | |
|  | 3. Calibration | | | |
|  | 4. Test result | | | |
|  | 5. Summary | | | |
|  | 6. Notes & remarks | | | |
|  | | | | |

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| **0.** | **Basic Information** |

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| --- | --- | --- | --- | --- |
| Manufacturer / make |  | Type | |  |
| Date |  | Location | |  |
| Order no. |  | Product category | Vehicle , STU , Component | |

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| --- | --- |
| **1.** | **Product Information** |

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| Vehicle information | | (OK , N/A ) | | | |  | | | | | | | | | | | | | | | |
| Commercial description | |  | | | | | | | Vehicle category | | | | | | | M1 , N1 | | | | | |
| VIN |  |  |  |  |  | |  |  | |  |  |  |  |  |  | |  |  |  |  |  |
|  |  |  |  |  | |  |  | |  |  |  |  |  |  | |  |  |  |  |  |
| Component/STU approval no. | |  | | | | | | | | | | | | | | | | | | | |

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| STU/component information | | | (OK , N/A ) | |  | | | | |
| Control module | | Make | | | |  | Type | |  |
| Hardware version | | | |  | Software version | |  |
| Serial number | | | |  | | | |
| ID number | | | |  | | | |
| Mobile network communication module : with , without  With / without GNSS receiver : with , without | | | | | | | |
| Power source | | Make | |  | | | Type |  | |
| External GNSS antenna | | Make | |  | | | Type |  | |
| Connectors and wiring | | Make | |  | | | Type |  | |
| Others |  | Make | |  | | | Type |  | |
|  | Make | |  | | | Type |  | |
|  | Make | |  | | | Type |  | |
| PSAP | | Make | | Rohde & Schwarz GmbH & Co. KG | | | Type | CMW-KA094 | |
| Simulator | | Make | | Rohde & Schwarz | | | Type | CMW500 (S/N: 165644) | |
| Remark | |  | | | | | | | |

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| **2.** | **Application status** |

**Annex for application (Reg (EU) 2015/758)**

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| Annex | Subject | | Applicability | Result |
| I *(C)* | Technical requirements and procedures for testing the resistance of eCall in-vehicle systems to severe crashes (high-severity deceleration test | | Apply , N/A | Pass , Fail |
| II *(V)* | Full-scale impact test assessment | | Apply , N/A | Pass , Fail |
| III *(V)* | Crash resistance of audio equipment | | Apply , N/A | Pass , Fail |
| IV | Co-existence of third party services (TPS) with the 112-based eCall in-vehicle systems | | Apply , N/A | Pass , Fail |
| V *(V)* | Automatic triggering mechanism | | Apply , N/A | Pass , Fail |
| VI *(C)* | Technical requirements for compatibility of eCall in-vehicle systems with the positioning services provided by the Galileo and the EGNOS systems | | Apply , N/A | Pass , Fail |
| VII *(V)* | In-vehicle system self-test | | Apply , N/A | Pass , Fail |
| VIII *(V)* | Technical requirements and test procedures related to privacy and data protection | | Apply , N/A | Pass , Fail |
| IX | Classes of vehicles referred to in Article 2 | | Apply , N/A | Pass , Fail |
| Article 5 (3) *(V)* | | Installation check compare to component approval | Apply , N/A | Pass , Fail |

**Annex for application (UNECE R144)**

|  |  |  |  |
| --- | --- | --- | --- |
| Annex | Subject | Applicability | Result |
| 9 | Test method for resistance to mechanical impact | Apply , N/A | Pass , Fail |
| 10 | Test methods for the navigation solutions | Apply , N/A | Pass , Fail |
| 11 | Test method for AECD/AECS post-crash performance | Apply , N/A | Pass , Fail |
| 12 | Definition of Minimum Set of Data (MSD) | Apply , N/A | Pass , Fail |

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| **3.** | **Calibration** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Equipment | Manufacturer | Type | Serial number | Expire date | Evidence |
| PSAP |  |  |  |  | Doc. , Photo |
| Simulator |  |  |  |  | Doc. , Photo |
| Hardware version: |  | Software version: |  | Doc. , Photo |
| Voltage measurement |  |  |  |  | Doc. , Photo |
| Sound pressure meter |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |

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| **4.** | **Test result** |

|  |  |  |  |  |  |  |  |  |  |
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| **Annex I** of (EU) 2017/79 HIGH-SEVERITY DECELERATION TEST  **Annex 9 and 11** of UN R144 RESISTANCE TO IMPACT | | | | | | | | | Pass , Fail , N/A |
| Date: | |  | | Location: |  | By: | | |  |
|  | | | | | | | | | |
| *Para. of 2017/79* | Requirements | | | | | | | | Result |
| 2. | Test Procedure | | | | | | | | |
| 2.2. | **Parts included for the test** | | | | | | | | |
| Control module , BU power source , External antenna , Wiring harness | | | | | | | | |
| Other parts : | |  | | | | | | |
| Worst case configuration (*For STU, need to choose the worst case orientation, it is not related vehicle installation*): | | | | | | | | |
|  | | | | | | | | |
| 2.3. | **Deceleration/Acceleration Procedure** | | | | | | | | |
| The test shall be conducted at an ambient temperature of 20 ± 10°C. | | | | | |  | °C | Pass , Fail |
| At the beginning of the test, the power supply shall be charged sufficiently to allow performing the subsequent verification tests. *(If no back-up battery used, measure the voltage and current of main battery)* | | | | | | | | Pass , Fail |
| The tested parts shall be connected to the test fixture by the intended mountings provided for the purpose of attaching them to a vehicle. If the intended mountings of the power source are specifically designed to break in order to release the power source in an impact event, they shall not be included in the test. | | | | | | | | Pass , Fail |
| If additional brackets or fixtures are used as part of the deceleration/acceleration facility, these shall provide a sufficiently rigid connection not affect the outcome of the test. | | | | | | | | Pass , Fail , N/A |
| Position and Orientation correspond to the installation in car? (Photos) | | | | | | | | Pass , Fail |
| The test pulse corridor: | | | | | | | | Pass , Fail |
|  | | | | | | | |
|  | Maximum velocity change ΔV shall be 70 km/h +0/-2 km/h | | | | | |  | km/h | Pass , Fail |
| 2.4. | Verification Procedure (refer to 2.8. below) | | | | | | | | |
| 2.8. | **Verification Procedure (for components)** | | | | | | | | |
| 2.8.2. | Control module including its connectors and wire harness | | | | | | | | Pass , Fail |
| 2.8.2.1. | No cable connectors are unplugged during the event. | | | | | | | | Pass , Fail |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 2.8.2.3. | **Before performing the test call, ensure that:** | | | | | | | | | | | | | | | | | | | | |
| The eCall sys. receives (real or simulated) GNSS signals to an extent representative of open sky conditions; | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| The eCall sys. has had sufficient time in a powered state to achieve a GNSS position fix; | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| One of the below connection procedures will be applied for any test call; | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| Simulated Mobile Network Procedure | | | | | | | | | | | | | | | | | | |
| Public Mobile Network Procedure | | | | | | | (TS11 number of PSAP : | | | | |  | | | | | | ) |
| Wired Transmission Procedure (Antenna Test required additionally) | | | | | | | | | | | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by 112-based sys.; | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| A false eCall to a genuine PSAP cannot be made over the live network; | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| If applicable, the TPS system is deactivated or will automatically switch to 112-based sys. | | | | | | | | | | | | | | | | | | | Pass , Fail , N/A | |
| 2.8.2.4. | Perform a test call (push mode) by applying a trigger according to the instructions of the manufacturer. | | | | | | | | | | Time for triggering: | | | |  | | sec | | | Pass , Fail | |
| 2.8.2.5. | **MSD emission and encoding:** Verify that an MSD was received by the PSAP test point. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| **Incident time determination:** Verify that the MSD contained an up-to-date timestamp. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| Time deviation (requirement: ≤60s): | | | | | | | | | | | | | |  | | sec | | |
| **Position determination:** Verify that the MSD contained an accurate, up-to-date location (acc. to Point 2.5 of Annex I). Confidence bit transmitted “position can be trusted” | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| φtrue: |  | ˚E, | | λtrue: | |  | | ˚N | , d\_IVS (requirement: <150m): | | | | | |  | | m | |
| 2.8.3. | Mobile network antenna including its connectors and wire harness | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| 2.8.3.1. | No cable connectors are unplugged during the event. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| 2.8.3.5. | Verify that VSWR (Voltage Standing Wave Ratio) satisfies the specifications by the manufacturer for new antennas. (*When use network (wireless), it is N/A*). | | | | | | | | | | | | | | | | | | | Pass , Fail , N/A | |
| 2.8.4. | Power supply (if not part of the control module) including its connectors & wire harness. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| 2.8.4.1. | No cable connectors are unplugged during the event. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
| 2.8.4.2. | Voltage corresponds to the manufacturer's specification. | | | | | | | | | | | | | | | | | | | Pass , Fail | |
|  | | | | | | | | | | | | | | | | | | | | | |
| Length to the first mounting point [mm] – *It is related with the energy during impact* | | | | | | | | | | | | | | | | | | | | | |
| Part | | | | Length | | Part | | | | | | Length | | Part | | | | | | | Length |
|  | | | |  | |  | | | | | |  | |  | | | | | | |  |
|  | | | |  | |  | | | | | |  | |  | | | | | | |  |

**Calibration**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Equipment | Manufacturer | Type | Serial number | Expire date | Evidence |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |
|  |  |  |  |  | Doc. , Photo |

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| **Annex II** of (EU) 2017/79 FULL-SCALE IMPACT TEST ASSESSMENT  **Para 26.2** of UN R144 | | | | | | | | | | Pass , Fail , N/A |
| **R94** Annex 3 | | Date: |  | Location: | |  | | By: | |  |
|  | | | | | | | | | | |
| *Para.* | Requirements | | | | | | | | | Result |
| 2.3.3. | Before performing the impact tests, ensure that: | | | | | | | | | |
| The in-vehicle power source, if installed for the test, is charged according to the specifications of the manufacturer at the beginning of the test to allow performing the subsequent verification tests; | | | | | | | | | Pass , Fail , N/A |
| The automatic eCall is enabled and armed and that the vehicle ignition or master control switch is activated; | | | | | | | | | Pass , Fail |
| One of the below connection procedures will be applied for any test call; | | | | | | | | | Pass , Fail |
| Simulated Mobile Network Procedure | | | | | | | | |
| Public Mobile Network Procedure | | | | (TS11 number of PSAP : | |  | | ) |
| Wired Transmission Procedure (Antenna Test required additionally) | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by the 112-based system; | | | | | | | | | Pass , Fail |
| A false eCall to a genuine PSAP cannot be made over the live network; and | | | | | | | | | Pass , Fail |
| If applicable, TPS system is deactivated or will automatically switch to 112-based System. | | | | | | | | | Pass , Fail , N/A |
| 2.4. | Verification procedure | | | | | | | | | |
| 2.4.1. | The performance requirements shall be verified by performing **a test call** from the vehicle after the impact using the 112-based eCall in-vehicle system:  **An automatically triggered eCall following the impact test.** | | | | | | | | | Pass , Fail |
| 2.4.2. | Perform **a test call (push mode)** by applying an automatic trigger. | | | | | | | | | Pass , Fail |
| 2.4.3. | Verify each of the following items in at least one of the test calls: | | | | | | | | | |
| (a) Verify that an eCall was triggered automatically by the full-scale impact event.  🡺 Check record of the PSAP test point and that the MSD control indicator was set to 'automatically initiated eCall'. (*Check ‘True’*) | | | | | | | | | Pass , Fail |
| (b) Verify that the eCall status indicator indicated an eCall sequence following the automatic or manual trigger.  🡺 Check record showing that an **indication sequence** was performed on all sensory channels specified in the manufacturer's documentation (visual and/or audible). (*Check with IF regarding the sequence and do record*) | | | | | | | | | Pass , Fail |
| (c) Verify that a MSD was received by the PSAP test point.  🡺 Check record of the PSAP test point showing that an MSD emitted from the vehicle following the automatic or manual trigger was received and successfully **decoded**.  If the MSD decoding failed at redundancy version MSD rv0 but was successful at a higher redundancy version or in robust modulator mode, as defined in ETSI/TS 126 267, this is acceptable. | | | | | | | | | Pass , Fail |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *[2.4.3. Cont.]* | (d) Verify that the MSD contained accurate vehicle-specific data.  This shall be verified by a record of the PSAP test point showing that the information transmitted in the fields regarding **vehicle type**, vehicle identification number (**VIN**) and vehicle **propulsion storage type** does not deviate from the information specified in the type-approval application. (*e.g. Vehicle type: M1, VIN: Actual VIN, Fuel type:* ) | | | | | Pass , Fail | | |
| (e) Verify that the MSD contained an accurate, up-to-date location.  This shall be verified in accordance with the Vehicle Location Test Procedure as defined in Point 2.5 of Annex I by a test record showing that the deviation between IVS location and true location, d\_IVS, is less than **150m** and the confidence bit transmitted to the PSAP test point indicates 'position can be trusted'.  If no GNSS signals are available at the impact test location, the vehicle can be moved to an appropriate location before performing the test call. | | | | | Pass , Fail | | |
| Real location | Latitude (B) |  | Longitude (L) |  | Result: |  | m |
| Read location |  |  |
| 2.4.4. | Clear down the test call using the appropriate PSAP test point command (e.g. hang up). | | | | | Pass , Fail | | |
| 2.4.5. | If the automatic test call could not be performed successfully due to vehicle-external factors, it shall be permissible to verify the automatic trigger following the impact via the internal record transaction function of the in-vehicle system.  This register shall be capable to store received trigger signals in non-volatile memory. The test engineer shall have access to the data stored in the in-vehicle system and shall verify that no record of automatic trigger signal is stored before the impact event and that a record of an automatic trigger signal is stored after the impact event. | | | | | Pass , Fail , N/A | | |
| 2.4.6. | If the test call was performed with the vehicle connected to an off-vehicle power supply (in cases where the impact test was carried out with the standard vehicle power supply not installed), verify that the on-board electrical system feeding the eCall in-vehicle system remained intact.  This shall be verified by a record of a test engineer confirming a successful check of the integrity of the on-board electrical system including the dummy in-vehicle power source (visual inspection for mechanical damage to either the power source's mounting bracket or its structure) and the connections via its terminals. | | | | | Pass , Fail , N/A | | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **R95** Annex 4 | | Date: |  | Location: | |  | | By: | |  |
|  | | | | | | | | | | |
| *Para.* | Requirements | | | | | | | | | Result |
| 2.3.3. | Before performing the impact tests, ensure that: | | | | | | | | | |
| The in-vehicle power source, if installed for the test, is charged according to the specifications of the manufacturer at the beginning of the test to allow performing the subsequent verification tests; | | | | | | | | | Pass , Fail |
| The automatic eCall is enabled and armed and that the vehicle ignition or master control switch is activated; | | | | | | | | | Pass , Fail |
| One of the below connection procedures will be applied for any test call; | | | | | | | | | Pass , Fail |
| Simulated Mobile Network Procedure | | | | | | | | |
| Public Mobile Network Procedure | | | | (TS11 number of PSAP : | |  | | ) |
| Wired Transmission Procedure (Antenna Test required additionally) | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by the 112-based system; | | | | | | | | | Pass , Fail |
| A false eCall to a genuine PSAP cannot be made over the live network; and | | | | | | | | | Pass , Fail |
| If applicable, TPS system is deactivated or will automatically switch to 112-based System. | | | | | | | | | Pass , Fail , N/A |
| 2.4. | Verification procedure | | | | | | | | | |
| 2.4.1. | The performance requirements shall be verified by performing a test call from the vehicle after the impact using the 112-based eCall in-vehicle system:  An automatically triggered eCall following the impact test. | | | | | | | | | Pass , Fail |
| 2.4.2. | Perform a test call (push mode) by applying an automatic trigger. | | | | | | | | | Pass , Fail |
| 2.4.3. | Verify each of the following items in at least one of the test calls: | | | | | | | | | |
| (a) Verify that an eCall was triggered automatically by the full-scale impact event. This shall be verified by a record of the PSAP test point showing that it received an eCall initiation signal following the impact event and that the MSD control indicator was set to 'automatically initiated eCall'. | | | | | | | | | Pass , Fail |
| (b) Verify that the eCall status indicator indicated an eCall sequence following the automatic or manual trigger. This shall be verified by a record showing that an indication sequence was performed on all sensory channels specified in the manufacturer's documentation (visual and/or audible). | | | | | | | | | Pass , Fail |
| (c) Verify that an MSD was received by the PSAP test point. This shall be verified by a record of the PSAP test point showing that an MSD emitted from the vehicle following the automatic or manual trigger was received and successfully decoded. If the MSD decoding failed at redundancy version MSD rv0 but was successful at a higher redundancy version or in robust modulator mode, as defined in ETSI/TS 126 267, this is acceptable. | | | | | | | | | Pass , Fail |

|  |  |  |
| --- | --- | --- |
| *[2.4.3. Cont.]* | (d) Verify that the MSD contained accurate vehicle-specific data. This shall be verified by a record of the PSAP test point showing that the information transmitted in the fields regarding vehicle type, vehicle identification number (VIN) and vehicle propulsion storage type does not deviate from the information specified in the type-approval application. | Pass , Fail |
| (e) Verify that the MSD contained an accurate, up-to-date location. This shall be verified in accordance with the Vehicle Location Test Procedure as defined in Point 2.5 of Annex I  to this Regulation by a test record showing that the deviation between IVS location and true location, d\_IVS, is less than 150m and the confidence bit transmitted to the PSAP test point indicates 'position can be trusted'. If no GNSS signals are available at the impact test location, the vehicle can be moved to an appropriate location before performing the test call. | Pass , Fail |
| 2.4.4. | Clear down the test call using the appropriate PSAP test point command (e.g. hang up). | Pass , Fail |
| 2.4.5. | If the automatic test call could not be performed successfully due to vehicle-external factors, it shall be permissible to verify the automatic trigger following the impact via the internal record transaction function of the in-vehicle system. This register shall be capable to store received trigger signals in non-volatile memory. The test engineer shall have access to the data stored in the in-vehicle system and shall verify that no record of automatic trigger signal is stored before the impact event and that a record of an automatic trigger signal is stored after the impact event. | Pass , Fail , N/A |
| 2.4.6. | If the test call was performed with the vehicle connected to an off-vehicle power supply (in cases where the impact test was carried out with the standard vehicle power supply not installed), verify that the on-board electrical system feeding the eCall in-vehicle system remained intact. This shall be verified by a record of a test engineer confirming a successful check of the integrity of the on-board electrical system including the dummy in-vehicle power source (visual inspection for mechanical damage to either the power source's mounting bracket or its structure) and the connections via its terminals. | Pass , Fail , N/A |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Annex III** of (EU) 2017/79 CRASH RESISTANCE OF AUDIO EQUIPMENT | | | | | | | | | | Pass , Fail , N/A | | |
| **R94** Annex 3 | | Date: |  | Location: | |  | | By: | |  | | |
|  | | | | | | | | | | | | |
| *Para.* | Requirements | | | | | | | | | Result | | |
| 2.4. | Arrangement of testers | | | | | | | | |  | | |
| 2.4.1. | The test shall be performed in a quiet environment, with a background noise level of not more than 50dB(A) and that is free from any noise sources that might otherwise disrupt the tests. | | | | | | | | | Pass , Fail | | |
| Background noise |  | dB(A) |
| 2.4.2. | The near-end tester shall be positioned so that his head is close to a normal seating position on the driver's seat of the impacted vehicle.  The tester shall use the in-vehicle audio equipment in the original arrangement. | | | | | | | | | Pass , Fail | | |
| 2.4.3. | The far-end tester shall be positioned away from the vehicle with sufficient separation so that speech in normal loudness from one tester cannot be understood without any aids by the other tester. | | | | | | | | | Pass , Fail | | |
| 2.5. | Test setup | | | | | | | | | | | |
| 2.5.1. | Before performing the impact tests, ensure that: | | | | | | | | | | | |
| One of the below connection procedures will be applied for any test call; | | | | | | | | | Pass , Fail | | |
| Simulated Mobile Network Procedure | | | | | | | | |
| Public Mobile Network Procedure | | | | (TS11 number of PSAP : | |  | | ) |
| Wired Transmission Procedure (Antenna Test required additionally) | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by the 112-based system; | | | | | | | | | Pass , Fail | | |
| A false eCall to a genuine PSAP cannot be made over the live network; | | | | | | | | | Pass , Fail | | |
| If applicable, the TPS system is deactivated or will automatically switch to the 112-based System; and | | | | | | | | | Pass , Fail , N/A | | |
| The vehicle ignition or master control switch is activated. | | | | | | | | | Pass , Fail | | |
| 2.5.2. | Where it is possible to adapt the volume setting, the maximum volume control setting in send and receive direction at the near-end and at the far-end shall be chosen.  The volume control settings at the far-end may be decreased during the test if required for better intelligibility. | | | | | | | | | Pass , Fail , N/A | | |
| 2.5.3. | If possible, no mobile networks that have an influence on the hands-free performance  (e.g. echo, AGC, noise reduction, etc.) should be chosen for the connection.  For simulated networks, if possible, DTX shall be switched off, the full rate codec shall be used (for GSM standard) and the highest bit rate of 12,2kbit/s shall be used (for AMR codecs). | | | | | | | | | Pass , Fail , N/A | | |

|  |  |  |
| --- | --- | --- |
| 2.6. | Test call | |
| 2.6.1. | Perform a test call (push mode) by applying a manual trigger via the in-vehicle HMI and wait until the loudspeaker(s) and microphone(s) are reconnected for voice communication after completed MSD transmission. | Pass , Fail |
| 2.6.2. | Exchange of Test Messages | |
| 2.6.2.1. | Receive Direction | |
| 2.6.2.1.1. | The far-end tester shall select and read one sentence pair of the list provided in the  Appendix. The tester shall read the sentences in a normal volume as used in phone calls. | Pass , Fail |
| 2.6.2.1.2. | The near-end tester shall assess whether the voice transmission in the receive direction was intelligible: The test in receive direction is passed if the near-end tester, resting in his original seating position, was able, with any feasible effort, to understand the full meaning of the transmission. | Pass , Fail |
| 2.6.2.1.3. | If required for the assessment, the near-end tester can request from the far-end tester to transmit additional sentence pairs. | Pass , Fail , N/A |
| 2.6.2.2. | Send direction | |
| 2.6.2.2.1. | The near-end tester shall select and, resting in his original seating position, read one sentence pair of the list provided in the Appendix. The tester shall read the sentences in a normal volume as used in phone calls. | Pass , Fail |
| 2.6.2.2.2. | The far-end tester shall assess whether the voice transmission in the send direction was intelligible: The test in send direction is passed if the far-end tester was able, with any feasible effort, to understand the full meaning of the transmission. | Pass , Fail |
| 2.6.2.2.3. | If required for the assessment, the far-end tester can request from the near-end tester to transmit additional sentence pairs. | Pass , Fail , N/A |
| 2.6.3. | Clear down the test call using the appropriate PSAP test point command (e.g. hang up). | Pass , Fail |
| 2.6.4. | If the requirements cannot be fulfilled due to impairments introduced by the PSAP test point or the transmission medium, the test call may be repeated, if required in an adapted test setup. | Pass , Fail , N/A |

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| **R95** Annex 4 | | Date: |  | Location: | |  | | By: | |  | | |
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| *Para.* | Requirements | | | | | | | | | Result | | |
| 2.4. | Arrangement of testers | | | | | | | | |  | | |
| 2.4.1. | The test shall be performed in a quiet environment, with a background noise level of not more than 50dB(A) and that is free from any noise sources that might otherwise disrupt the tests. | | | | | | | | | Pass , Fail | | |
| Background noise |  | dB(A) |
| 2.4.2. | The near-end tester shall be positioned so that his head is close to a normal seating position on the driver's seat of the impacted vehicle. The tester shall use the in-vehicle audio equipment in the original arrangement. | | | | | | | | | Pass , Fail | | |
| 2.4.3. | The far-end tester shall be positioned away from the vehicle with sufficient separation so that speech in normal loudness from one tester cannot be understood without any aids by the other tester. | | | | | | | | | Pass , Fail | | |
| 2.5. | Test setup | | | | | | | | | | | |
| 2.5.1. | Before performing the impact tests, ensure that: | | | | | | | | | | | |
| One of the below connection procedures will be applied for any test call; | | | | | | | | | Pass , Fail | | |
| Simulated Mobile Network Procedure | | | | | | | | |
| Public Mobile Network Procedure | | | | (TS11 number of PSAP : | |  | | ) |
| Wired Transmission Procedure (Antenna Test required additionally) | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by the 112-based system; | | | | | | | | | Pass , Fail | | |
| A false eCall to a genuine PSAP cannot be made over the live network; | | | | | | | | | Pass , Fail | | |
| If applicable, the TPS system is deactivated or will automatically switch to the 112-based System; and | | | | | | | | | Pass , Fail , N/A | | |
| The vehicle ignition or master control switch is activated. | | | | | | | | | Pass , Fail | | |
| 2.5.2. | Where it is possible to adapt the volume setting, the maximum volume control setting in send and receive direction at the near-end and at the far-end shall be chosen.  The volume control settings at the far-end may be decreased during the test if required for better intelligibility. | | | | | | | | | Pass , Fail , N/A | | |
| 2.5.3. | If possible, no mobile networks that have an influence on the hands-free performance  (e.g. echo, AGC, noise reduction, etc.) should be chosen for the connection.  For simulated networks, if possible, DTX shall be switched off, the full rate codec shall be used (for GSM standard) and the highest bit rate of 12,2kbit/s shall be used (for AMR codecs). | | | | | | | | | Pass , Fail , N/A | | |

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| 2.6. | Test call | |
| 2.6.1. | Perform a test call (push mode) by applying a manual trigger via the in-vehicle HMI and wait until the loudspeaker(s) and microphone(s) are reconnected for voice communication after completed MSD transmission. | Pass , Fail |
| 2.6.2. | *Exchange of Test Messages* | |
| 2.6.2.1. | Receive Direction | |
| 2.6.2.1.1. | The far-end tester shall select and read one sentence pair of the list provided in the  Appendix. The tester shall read the sentences in a normal volume as used in phone calls. | Pass , Fail |
| 2.6.2.1.2. | The near-end tester shall assess whether the voice transmission in the receive direction was intelligible: The test in receive direction is passed if the near-end tester, resting in his original seating position, was able, with any feasible effort, to understand the full meaning of the transmission. | Pass , Fail |
| 2.6.2.1.3. | If required for the assessment, the near-end tester can request from the far-end tester to transmit additional sentence pairs. | Pass , Fail , N/A |
| 2.6.2.2. | Send direction | |
| 2.6.2.2.1. | The near-end tester shall select and, resting in his original seating position, read one sentence pair of the list provided in the Appendix. The tester shall read the sentences in a normal volume as used in phone calls. | Pass , Fail |
| 2.6.2.2.2. | The far-end tester shall assess whether the voice transmission in the send direction was intelligible: The test in send direction is passed if the far-end tester was able, with any feasible effort, to understand the full meaning of the transmission. | Pass , Fail |
| 2.6.2.2.3. | If required for the assessment, the far-end tester can request from the near-end tester to transmit additional sentence pairs. | Pass , Fail , N/A |
| 2.6.3. | Clear down the test call using the appropriate PSAP test point command (e.g. hang up). | Pass , Fail |
| 2.6.4. | If the requirements cannot be fulfilled due to impairments introduced by the PSAP test point or the transmission medium, the test call may be repeated, if required in an adapted test setup. | Pass , Fail , N/A |

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| **Annex V** of (EU) 2017/79 AUTOMATIC TRIGGERING MECHANISM | | Pass , Fail , N/A |
|  | | |
| *Para.* | Requirements | Result |
| 1.2. | Documentation Requirements | |
| 1.2.1. | The manufacturer shall provide a **statement** which affirms that the strategy chosen to trigger an automatic eCall ensures triggering also in accident configurations dissimilar from and/or of a lower severity than the collisions simulated in the applicable full-scale crash tests in R94 and R95. | Pass , Fail |
| 1.2.2. | The manufacturer shall choose the collision typology and severity and will demonstrate that it is significantly different than the full-scale crash tests. | Pass , Fail |
| 1.2.3. | The manufacturer shall provide the type-approval authority with an explanation and technical documentation which shows, in overall terms, how this is achieved. | Pass , Fail |
| 1.2.3.1. | Documentation that shows, to the satisfaction of the type-approval authority, that the activation of supplemental restraint systems and the severity level, chosen at the discretion of the manufacturer, also induces an automatic eCall shall be considered satisfactory. | Pass , Fail |
| 1.2.3.2. | Documentation that shows, to the satisfaction of the type-approval authority, the strategy to prevent unjustified eCalls from being made in case of impacts of a severity level that is not considered a severe accident. Moreover, failure mode analysis shall be provided which shows that any hardware or software faults shall not result in automatic triggering of an eCall. | Pass , Fail |
| 1.2.3.3. | Airbag control unit specification drawings, specification data notes, sensitivity drawings, relevant circuit diagrams or similar documents considered equivalent by the type-approval authority would be suitable means to demonstrate this connection. | Pass , Fail |
| 1.2.3.4. | The extended documentation package shall remain strictly confidential. It may be kept by the approval authority, or, at the discretion of the approval authority, may be retained by the manufacturer. In case the manufacturer retains the documentation package, that package shall be identified and dated by the approval authority once reviewed and approved. It shall be made available for inspection by the approval authority at the time of approval or at any time during the validity of the approval. | Pass , Fail |

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| **Annex VI** of (EU) 2017/79 COMPATIBILITY OF ECALL IN-VEHICLE SYSTEMS WITH THE POSITIONING SERVICES PROVIDED BY THE GALILEO AND THE EGNOS SYSTEMS  **Annex 10** of UN R144 POSITIONING DETERMINATION | | | | | | | | | | Pass , Fail , N/A |
| Date: | |  | Location: | | |  | By: | | |  |
|  | | | | | | | | | | |
| *Para. of 2017/79* | Requirements | | | | | | | | | Result |
| 2.1. | **Test conditions** | | | | | | | | | |
| 2.1.1. | Test object:  eCall includes a GNSS receiver and a GNSS antenna, specifying navigation characteristics and features of the tested system. | | | | | | | | | |
| 2.1.2. | Test samples:  At least 3 pieces and can be tested in parallel. | | | | | | | | | |
| 2.1.3. | The eCall is provided for the test with the installed SIM-card, operation manual and the software (provided on electronic media) | | | | | | | | | |
| 2.1.4. | The attached documents shall contain the following data   * Device serial number; * Hardware version; * Software version; * Device provider identification number; * Relevant technical documentation to perform the tests. | | | | | | | | | Pass , Fail |
| 2.1.5. | Climatic conditions: | | | | | | | | | Pass , Fail |
| Air temp. (23 ± 5°C): | | 23 | °C, | Relative air humidity (25 ~ 75%): | | | 70 | % |

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| 2.2. | **Test Procedures** | | | | | | | | | | | |
| 2.2.1. | NMEA-0183 Messages Output Test (Combined into 2.2.2.) – *Use RMC data* | | | | | | | | | Pass , Fail | | |
| 2.2.2. | Positioning Accuracy in Autonomous Static Mode (Simulation script refer to Table 2)  *(Test set-up, see last page)* | | | | | | | | | Pass , Fail | | |
| True position (˚): | | 30 | N, | 120 | | E *(Use this data to evaluate the horizontal position error)* | | | | | |
| Sample | NMEA-0183 Output | | Horizontal position errors (m) ≤ 15 | | | | | | | | |
| 1 | OK | | Galileo | | 0.62 | | GPS | 0.83 | | Glonass | 2.84 |
| 2 | OK | | Galileo | | 1.37 | | GPS | 0.43 | | Glonass | 2.90 |
| 3 | OK | | Galileo | | 0.46 | | GPS | 0.51 | | Glonass | 4.64 |
| 1 | GPS + Galileo + SBAS | | | | 0.36 | | GPS + Galileo + Glonass + SBAS | | | | 1.31 |
| 2 | GPS + Galileo + SBAS | | | | 0.56 | | GPS + Galileo + Glonass + SBAS | | | | 0.69 |
| 3 | GPS + Galileo + SBAS | | | | 0.54 | | GPS + Galileo + Glonass + SBAS | | | | 0.65 |

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| 2.2.3. | Positioning accuracy in autonomous dynamic mode (Simulation script refer to Table 3) | | | | | | | | | | | | | Pass , Fail | |
| *(Before calculation, adjust the jump and beginning time between simulator and receiver.   Then draw graph and check the time gap and adjust it, and do calculation)* | | | | | | | | | | | | | | |
| Sample | Horizontal position errors (m) ≤ 15 | | | | | | | | | | | | | |
| 1 | GPS + Galileo + SBAS | | | | 0.58 | | | GPS + Galileo + Glonass + SBAS | | | | | 0.48 | |
| 2 | GPS + Galileo + SBAS | | | | 0.63 | | | GPS + Galileo + Glonass + SBAS | | | | | 0.43 | |
| 3 | GPS + Galileo + SBAS | | | | 0.98 | | | GPS + Galileo + Glonass + SBAS | | | | | 0.42 | |
| 2.2.4. | Movement in shadow areas, areas of intermittent reception of navigation signals and urban canyons (Simulation script refer to Table 4) | | | | | | | | | | | | | Pass , Fail | |
| *(Before calculation, adjust the jump and beginning time between simulator and receiver.   The data of simulator for shadow area be deleted.  Then draw graph and check the time gap and adjust it, and do calculation)* | | | | | | | | | | | | | | |
| Sample | Horizontal position errors (m) ≤ 40 | | | | | | | | | | | | | |
| 1 | GPS + Galileo + SBAS | | | | 0.46 | | | GPS + Galileo + Glonass + SBAS | | | | | 2.83 | |
| 2 | GPS + Galileo + SBAS | | | | 0.87 | | | GPS + Galileo + Glonass + SBAS | | | | | 0.45 | |
| 3 | GPS + Galileo + SBAS | | | | 0.91 | | | GPS + Galileo + Glonass + SBAS | | | | | 0.59 | |
| 2.2.5. | Cold Start Time to First Fix (Simulation script refer to Table 2): ≥ 10 times (*Use RMC data*) | | | | | | | | | | | | | Pass , Fail | |
| *(In static condition only. The result can check by NMEA data)* | | | | | | | | | | | | | | |
| Sample | Time to first fix with -130dBm (s) ≤ 60  GPS + Galileo + SBAS | | | | | | | | | | | | | Average |
| 1 | 28 | 26 | 34 | 32 | | 37 | 41 | | 35 | 31 | 36 | 29 | |  |
| 2 | 24 | 37 | 42 | 39 | | 38 | 41 | | 39 | 45 | 41 | 40 | |  |
| 3 | 29 | 27 | 25 | 28 | | 29 | 31 | | 32 | 35 | 36 | 32 | |  |
| Sample | Time to first fix with -140dBm (s) ≤ 300  GPS + Galileo + SBAS | | | | | | | | | | | | | Average |
| 1 | 28 | 29 | 26 | 31 | | 35 | 36 | | 34 | 29 | 27 | 26 | |  |
| 2 | 41 | 39 | 38 | 45 | | 42 | 37 | | 48 | 36 | 38 | 39 | |  |
| 3 | 28 | 29 | 31 | 36 | | 35 | 38 | | 34 | 35 | 31 | 32 | |  |
| Sample | Time to first fix with -130dBm (s) ≤ 60  GPS + Galileo + Glonass + SBAS | | | | | | | | | | | | | Average |
| 1 | 35 | 31 | 32 | 34 | | 31 | 32 | | 26 | 28 | 29 | 27 | |  |
| 2 | 42 | 39 | 42 | 43 | | 37 | 41 | | 39 | 38 | 43 | 46 | |  |
| 3 | 29 | 28 | 23 | 26 | | 24 | 28 | | 32 | 34 | 31 | 30 | |  |
| Sample | Time to first fix with -140dBm (s) ≤ 300  GPS + Galileo + Glonass + SBAS | | | | | | | | | | | | | Average |
| 1 | 31 | 32 | 34 | 30 | | 29 | 27 | | 29 | 28 | 23 | 27 | |  |
| 2 | 36 | 38 | 43 | 45 | | 41 | 42 | | 39 | 40 | 42 | 37 | |  |
| 3 | 39 | 37 | 34 | 32 | | 31 | 29 | | 28 | 26 | 28 | 29 | |  |

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| 2.2.6. | Re-acquisition time of tracking signals after block out (Simulation script refer to Table 2) | | | | | | | | | | | | | Pass , Fail | |
| Sample | Re-acquisition time with -130dBm ≤ 20 s GPS + Galileo + SBAS | | | | | | | | | | | | | Average |
| 1 | 2 | 1 | 1 | 1 | | 2 | 1 | 2 | 1 | | 1 | 1 | |  |
| 2 | 2 | 3 | 2 | 1 | | 2 | 2 | 1 | 2 | | 2 | 1 | |  |
| 3 | 2 | 3 | 2 | 2 | | 2 | 3 | 3 | 2 | | 2 | 3 | |  |
| Sample | Re-acquisition time with -130dBm ≤ 20 s  GPS + Galileo + Glonass + SBAS | | | | | | | | | | | | | Average |
| 1 | 2 | 3 | 2 | 2 | | 2 | 3 | 2 | 3 | | 2 | 3 | |  |
| 2 | 2 | 2 | 1 | 1 | | 2 | 1 | 2 | 2 | | 1 | 3 | |  |
| 3 | 2 | 1 | 2 | 1 | | 3 | 1 | 2 | 3 | | 1 | 2 | |  |
| 2.2.7. | GNSS receiver sensitivity in cold start mode (Simulation script refer to Table 2)  GPS + Galileo + SBAS | | | | | | | | | | | | | Pass , Fail | |
| Sample | Time to first fix with  -144dBm ≤ 3,600 s | | | | Available time with  -155dBm ≥ 600 s | | | | | Re-acquisition time with -150dBm ≤ 60 s | | | | |
| 1 | 48 | | | | 一直持续 | | | | | 2 | | | | |
| 2 | 46 | | | | 一直持续 | | | | | 2 | | | | |
| 3 | 49 | | | | 一直持续 | | | | | 3 | | | | |
| GNSS receiver sensitivity in cold start mode (Simulation script refer to Table 2)  GPS + Galileo + Glonass + SBAS | | | | | | | | | | | | | Pass , Fail | |
| Sample | Time to first fix with  -144dBm ≤ 3,600 s | | | | Available time with  -155dBm ≥ 600 s | | | | | Re-acquisition time with -150dBm ≤ 60 s | | | | |
| 1 | 49 | | | | 一直持续 | | | | | 2 | | | | |
| 2 | 51 | | | | 一直持续 | | | | | 3 | | | | |
| 3 | 46 | | | | 一直持续 | | | | | 3 | | | | |

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| **Annex VII** of (EU) 2017/79 IN-VEHICLE SYSTEM SELF-TEST  **Paragraph 17.5.** of UN R144 AECD INFORMATION AND WARNING SIGNAL | | | | | | | Pass , Fail , N/A |
| Date: | |  | Location: |  | | By: |  |
|  | | | | | | | |
| *Para. of 2017/79* | Requirements | | | | | | Result |
| 1.2.1. | The eCall system shall carry out a self-test at each system power-up. | | | | | | Pass , Fail |
| 1.2.2. | The self-test function shall monitor at least the technical items listed in the Table | | | | | | Pass , Fail |
| Documentation demonstration (*See test result 2.1.2.*) | | | | | |
| 1.2.3. | A warning in form of either a visual tell-tale or a warning message in a common space shall be provided in case a failure is detected by the self-test function. | | | | Visual tell-tale , Warning message | | Pass , Fail |
| Visual tell-tale method (e.g. blinking, off): | | |  | | |
| 1.2.3.1. | It shall remain activated while the failure is present. | | | | | | Pass , Fail |
| 1.2.3.2. | It may be cancelled temporarily, but shall be repeated whenever the ignition or vehicle master control switch is being activated. | | | | | | Pass , Fail |
| 1.3. | Documentation – Manufacturer shall provide technical principle applied to monitor the item of below table. | | | | | | Pass , Fail |

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| 2.1. | Self-test Function Verification Test | | | | | |
| 2.1.1. | Test by | | Vehicle , STU , Component | | | |
| 2.1.2.  *(Com.)* | Simulate a malfunction of the eCall system by introducing a critical failure in one or more of the items monitored by the self-test function according to technical documentation provided by the manufacturer (para 1.3.) | | | | | |
| Failure introduced | Apply? | | MI ‘ON’  (2.1.3.) | Beep? (Opt) | MI ‘OFF’ after restore (2.1.5.) |
| eCall ECU is in working order (e.g. no internal hardware failure, processor/memory is ready, logic function in expected default state) 🡺 *Make failure hardware(s) (e.g. drilling, see last page)* | N/A | | OK | OK | OK |
| External mobile network antenna is connected | N/A | | OK | OK | OK |
| Mobile network communication device is in working order (no internal hardware failure, responsive)  🡺 *Make failure hardware(s) (e.g. drilling, see last page)* | N/A | | OK | OK | OK |
| External GNSS antenna is connected | N/A | | OK | OK | OK |
| GNSS receiver is in working order (no internal hardware failure, output within expected range) 🡺 *Make failure hardware(s) (e.g. drilling, see last page)* | N/A | | OK | OK | OK |
| Crash control unit is connected | N/A | | OK | OK | OK |
| No communication failures (bus connection failures) of relevant components in this table | N/A | | OK | OK | OK |
| SIM is present (this item only applies if a removable SIM is used) | N/A | | OK | OK | OK |
| Power source is connected | N/A | | OK | OK | OK |
| Power source has sufficient charge (threshold at the discretion of the manufacturer) 🡺 *e.g. Back-up battery.* | N/A | | OK | OK | OK |
| *(Vehicle)* | Disconnect the BUB. | N/A | | OK | OK | OK |
| Disconnect the antenna cable | N/A | | OK | OK | OK |
| *(IGN OFF 🡺 Make failure 🡺 IGN ON 🡺 Check MI ON 🡺 IGN OFF 🡺 Restore 🡺 IGN ON 🡺 Check MI OFF)* | | | | | |

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| **Annex VIII** of (EU) 2017/79 - TECHNICAL REQUIREMENTS AND TEST PROCEDURES RELATED TO PRIVACY AND DATA PROTECTION | | | | | | | | | | | Pass , Fail , N/A | | |
| Date: | |  | | | Location: | |  | | By: | |  | | |
|  | | | | | | | | | | | | | |
| *Para. of 2017/79* | Requirements | | | | | | | | | | Result | | |
| **PART I** | **VERIFYING THE LACK OF TRACEABILITY** | | | | | | | | | | | | |
| 3.2. | This test shall be performed after successful connection of the eCall IVS with the network and registration of the device so as to facilitate transmission of the MSD. (*IVS: Interactive Voice System, MSD: Minimum Set of Data,  PSAP: Public Safety Answering Point)*) | | | | | | | | | | Pass , Fail | | |
| Time at [hh:mm]: | | |  | | MSD received? | | Yes , No | | IVS phone no.: | |  | |
| 3.2.1. | The initial emergency call must have been 'cleared down' and deregistered from the network prior to this test (e.g. hang up), otherwise the PSAP test point will be enabled to connect. | | | | | | | | | | Pass , Fail | | |
| Time at [hh:mm]: | |  |
| Remark: | |  | | | | | | | | | | |
| *(Call back before enabled and get data, then call back again when enable to connect and get data.)* | | | | | | | | | | | | |
| 3.2.2. | Before performing the test, ensure that: | | | | | | | | | | | | |
| Used connection for test call (Point 2.7 of Annex I ) | | | | | | | | | | Pass , Fail | | |
| * Simulated Mobile Network Procedure * Public Mobile Network Procedure * Wired Transmission Procedure | | | | | | | | | |
| The dedicated PSAP test point is available to receive an eCall emitted by the 112-based system; | | | | | | | | | | Pass , Fail | | |
| The vehicle ignition or master control switch is activated; | | | | | | | | | | Pass , Fail | | |
| Any TPS or added-value service system is disabled. | | | | | | | | | | Pass , Fail , N/A | | |
| 3.2.3. | Leave the 112-based eCall IVS powered. | | | | | | | | | | Pass , Fail | | |
| 3.2.4. | Via the PSAP test point, attempt to connect to the 112-based eCall IVS. | | | | | | | | | | Pass , Fail | | |
| 4.1. | 112-based eCall in-vehicle system is not available for communication with the PSAP when the PSAP test point attempts to connect. | | | | | | | | | | Pass , Fail | | |
| *The eCall IVS information sent during accident shall be deleted from PSAP after accident.*  *So, it shall be impossible to call to eCall IVS from PSAP afterward.* | | | | | | | | | | | | | |

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| **PART II** | **VERIFYING THE LENGTH OF TIME AN eCALL LOG FILE IS STORED** | | | | | | | | | | |
| 3.1. | The TS shall be facilitated to have access to the part of the system where the eCall log files are stored in the IVS. | | | | | | | | | | |
| Access by (*Name of computer owner and file name*): | | |  | | | | | | | |
| 4.1. | Used connection for test call (Point 2.7 of Annex I ) | | | | | | | | | Pass , Fail | |
| * Simulated Mobile Network Procedure * Public Mobile Network Procedure * Wired Transmission Procedure | | | | | | | | |
| 4.2. | Max 13h after a test call has been placed, the Technical Service tester shall be facilitated with access to where the eCall log files are stored in the IVS. | | | | | | | | | Pass , Fail | |
| Time of eCall-trigger [hh:mm]: |  | | | Time of the MSD is deleted [hh:mm]: | | | | | |  |
| 5.1. | No log files are present in the eCall in-vehicle system memory. | | Time erased the log files after triggered eCall: | | |  | h |  | m | Pass , Fail | |

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| **PART III** | **VERIFYING THE AUTOMATIC AND CONTINUOUS REMOVAL OF DATA IN THE INTERNAL MEMORY** | | | | |
| 3.1. | The TS shall be facilitated to have access to the part of the system where the eCall log files are stored in the IVS. | | | | |
| Access by (*Name of computer owner and file name*): |  | | | |
| 4.1. | TS tester shall be facilitated with access to where the vehicle location data are stored in the IVS internal memory. (*Turn on the eCall IVS and wait 15 minute 🡺 read position memory*) | | | | Pass , Fail |
| 5.1. | Max. of last 3 locations are present in the eCall in-vehicle system memory. | |  | Locations | Pass , Fail |

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| **Article 5 (3)** - Installation check compare to component approval | | | | | Pass , Fail , N/A |
| Date: |  | Location: |  | By: |  |
|  | | | | | |
| Requirements | | | | | Result |
| Check the installation method, direction, length to the 1st mounting point, marking including approval number for (After disassemble the cluster and roof inner);   * eCall unit * Antenna | | | | | Pass , Fail |
| Need evidence by photo. | | | | | Pass , Fail |

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| **PART IV** | **VERIFYING THE NON-EXCHANGE OF PERSONAL DATA BETWEEN AN eCALL IN-VEHICLE SYSTEM OR STU AND THIRD PARTY SERVICES SYSTEMS** | |
| 3.2. | The TPS system shall be disabled for the duration of the test call. | Pass , Fail |
| 3.2.1. | Before performing the test call, ensure that: | |
| used connection for test call (Point 2.7 of Annex I ) | Pass , Fail |
| * Simulated Mobile Network Procedure * Public Mobile Network Procedure * Wired Transmission Procedure |
| the dedicated PSAP test point is available to receive an eCall emitted by 112-based sys; | Pass , Fail |
| a false eCall to a genuine PSAP cannot be made over the live network; | Pass , Fail |
| The vehicle ignition or master control switch is activated. | Pass , Fail |
| 3.2.2. | Perform a test call by applying a manual trigger of the system (push mode) with the TPS disabled. | Pass , Fail |
| 3.2.3. | Verify that a call was established with the PSAP test point by a record of the PSAP test point showing that it received a call initiation signal or by a successful voice connection to the PSAP test point. | Pass , Fail |
| 3.2.4. | Clear down the test call using the appropriate PSAP test point command (e.g. hang up). | Pass , Fail |
| 3.2.5. | If the call attempt of the 112-based system fails during the test, the test procedure may be repeated. | Pass , Fail |
| 3.3. | The lack of a log file in the TPS system shall be verified via access to the part of the system where eCall log files are stored. The requirement is determined to have been passed if no log files are present in the TPS system in-vehicle system memory. | Pass , Fail |

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| **Annex 12** of UN R144 DEFINITION OF MINUMUM SET OF DATA (MSD) |
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| **3.** | **Summary** |

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| 4.1. | Pictures taken during test | Yes , No |
| 4.1.1. | If No, why: | |
| 4.2. | Basic information checked | Yes , No |
| 4.3. | Vehicle information checked | Yes , No |
| 4.4. | Calibration verified | Yes , No |
| 4.5. | Requirement checked | Yes , No |
| 4.6. | Test minutes completed | Yes , No |

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| **4.** | **Notes & Remarks** |

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|  | *The simulation cannot make enough strength, so use attenuator (e.g. 30 dBm) and LNA with consider the cable loss.  (e.g. -135 dBm = -30 (Attenuator) - 10 (LNA) + 2.5 (Cable) - 97.5 (Simulator)* |
| IVS: Interactive Voice System GSM: Global System for Mobile communication (2G) | |
| In case of vehicle test, below tests also need to check   1. Installation check compare to component approval (Direction, mounting method, length of cable to 1st mounting…) (eCall unit, Antenna..) 2. Fail test (Malfunction test (GNSS antenna fail, GSM antenna fail, BUB fail, eCall unit fail, ACU communication fail,   When disconnect vehicle battery (Veh bettry still alive) and BUB, the eCall warning shall be ON...) | |